PEDIATRIC PULSELESS ARREST ALGORITHM

Assess ABCs

Begin CPR

Confirm cardiac rhythm in more than one lead

Ventricular Fibrillation/ Pulseless Ventricular Tachycardia

- Continue CPR
- Secure Airway
- Ventilate 100% O_2
- IV/IO Access

DO NOT DELAY DEFIBRILLATION

Defibrillate up to 3 times
2 J/kg, 4 J/kg, 4 J/kg *(c)*

Epinephrine
0.01 mg/kg (1:10,000) IV/IO
0.1 mg/kg (1:1,000) ET
Repeat every 3-5 minutes
(same dose)

Defibrillate 4 J/kg 30-60 sec
after each medication

Lidocaine 1 mg/kg IV/IO/ET
May Repeat twice at same
dose in 5-15 minutes (d)

Defibrillate 4 J/kg 30-60 sec
After each medication

Asystole / PEA

Identify and Treat Causes

Hypovolemia	(Volume Infusion)
Cardiac Tamponade	(Volume Infusion)
Tension Pneumothorax	(*Needle Decompression*)
Massive Pulmonary Embolism	
Massive AMI	
Drug Overdose	(Narcan) *(a)*
Hypoxia	(Ventilation)
Hypothermia	(Warming)
Acidosis	*(a)*
Hyperkalemia	*(a)*

- Continue CPR
- Secure Airway
- Ventilate 100% O_2
- IV/IO Access

Epinephrine (1st Dose)
0.01 mg/kg (1:10,000) IV/IO
0.1 mg/kg (1:1,000) ET
Repeat every 3-5 minutes
(same dose)

(a)-Sodium bicarbonate, 1 mEq/kg, diluted 1:1, with medical consultation.

(b)-10%Calcium Chloride, 20 mg/kg IVP/IO with medical consultation.

(c)-**INITIATE TRANSPORT**

(d) If lidocaine is successful, start lidocaine infusion at 20-50 µg/kg/min

Note Well: Follow each drug with defibrilation. Sequence should be: CPR→ DRUG→ SHOCK (Repeat.) OR CPR→DRUG→SHOCK→SHOCK→ SHOCK (Repeat.)

Pediatric Cardiac Emergencies: Asystole & Pulseless Electrical Activity

Note Well: *Cardiac dysrhythmias in otherwise healthy children are frequently the result of respiratory distress.*

I. All Provider Levels

1. Follow General Patient Care guidelines in section A1.
2. Confirm an absent pulse and begin CPR with BVM and 100% oxygen.
3. Attach AED and analyze rhythm

Note Well: *Do not use an AED on a patient younger than 8 years of age or weighing less than 25kg (55 pounds)*

Note Well: *EMT-I and EMT-P should use the monitor-defibrillator. Confirm asystole in more than one lead*

4. Initiate advanced airway management using a combi-tube

Note Well: *Do not use a combi-tube on a patient younger than 16 years of age or less than 5-feet tall.*

Note Well: *The EMT-I and EMT-P should use ET intubation.*

5. Call for ALS support. Initiate care and do not delay transport waiting for an ALS unit.

I. All Provider Levels (Continued)

6. Establish IV access.

> **Note Well:** *BLS Providers cannot start an IV on a patient less than eight years of age.*

> **Note Well:** *An ALS unit must be en route or on scene.*

> **Note Well:** *If IV access cannot be readily established and the child is younger than 6 years of age then ALS Providers only may proceed with IO access. If the child is over 6 years of age, then contact Medical Control for IO access.*

II. Advanced Life Support Providers

1. Using the most readily available route, administer an initial dose of epinephrine 1:1000 solution at 0.1mg/kg (maximum single dose 10mg) via endotracheal tube (ET) or 1:10,000 solution at 0.01 mg/kg (maximum single dose 1.0 mg) via IV or IO route.

> **Note Well:** *ET doses should be flushed with 3-5cc of normal saline. IV doses should be flushed with 5-10cc of normal saline.*

2. Using the most readily available route, administer subsequent doses of epinephrine 1:1000 solution at 0.1mg/kg (maximum single dose 10mg) via ET or 1:10,000 solution at 0.01 mg/kg (maximum single dose 1.0 mg) via IV or IO route.

   A. Repeat epinephrine administration every 3-5 minutes.

II. Advanced Life Support Providers (Continued)

3. Look for possible causes and treat accordingly.

   A. Hypovolemia
      i. Volume Infusion

   B. Cardiac Tamponade
      i. Volume Infusion

   C. Hypoxia
      i. Ventilation

   D. Tension Pneumothorax
      i. Needle Decompression

   E. Massive Pulmonary Embolism
      i. Oxygenation

   F. Massive MI
      i. Oxygenation

   G. Drug Overdose
      i. Narcan, 0.1mg/kg, maximum single dose 2mg
      ii. 10% Calcium Chloride, 20mg/kg (0.2ml/kg), IV / IO (*Med Control Option Only*)
      iii. Sodium Bicarbonate, 1meq/kg, diluted 1 to 1 with normal saline (*Med Control Option Only*)

   H. Hypothermia
      i. Warming

   I. Acidosis
      i. Sodium Bicarbonate, 1meq/kg, diluted 1 to 1 with normal saline (*Med Control Option Only*)

   J. Hyperkalemia
      i. 10% Calcium Chloride, 20mg/kg (0.2ml/kg), IV / IO (*Med Control Option Only*)
      ii. Sodium Bicarbonate, 1meq/kg, diluted 1 to 1 with normal saline (*Med Control Option Only*)

III. Transport Decision

1. Contact medical control for additional instructions.
2. Perform focused history and detailed physical exam en route to the hospital.
3. Reassess at least every 3-5 minutes, more frequently as necessary and possible.
4. Transport to the closest appropriate open facility.

IV. The Following Options are Available by Medical Control Only

1. 10% Calcium Chloride, 20mg/kg (0.2ml/kg), IV / IO in suspected cases of drug overdose or hyperkalemia.
2. Sodium Bicarbonate, 1meq/kg diluted 1 to 1 with normal saline, in suspected cases of drug overdose, acidosis or hyperkalemia.
3. IO access for patients greater than 6 years of age.

This protocol was developed and revised by Children's National Medical Center, Center for Prehospital Pediatrics, Division of Emergency Medicine and Trauma Services, Washington, D.C.

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